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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/777,688	02/12/2004	Andreas Huschka	5500-79302	5717

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EXAMINER

PHAM, HOAI V

ART UNIT	PAPER NUMBER
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2814

DATE MAILED: 08/23/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/777,688

Applicant(s)

HUSCHKA ET AL.

Examiner

Hoai v. Pham

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 June 2006.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 21-32 and 35-50 is/are pending in the application.
4a) Of the above claim(s) 22-27, 35, 36, 47 and 48 is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 21 and 28-32, 37-46, 49-50 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☒ Certified copies of the priority documents have been received in Application No. 10/185,148.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6/16/06
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 21, 28-32, 37-46 are 49-50 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 21, lines 13-14, the limitation "wherein the semiconductor devices" renders the claim indefinite. It is not clear where the semiconductor devices come from.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was

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not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 21, 28-32, 37-46, and 49-50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Weiblen et al. [U.S. Pat. 6,528,868] previously applied, in view of Hanzawa et al. [U.S. Pat. 6,538,866] previously applied, and Lee et al. [U.S. Pat. 6,852,567] previously applied and Applicant Admitted Prior Art (fig. 2, page 3).

With respect to claims 21 and 28-31, Weiblen et al. (fig. 5, cols. 3-4) discloses a semiconductor device, comprising:

a first die attach paddle (150' ") made of an electrically conductive material, wherein the first die attach paddle (150' ") is electrically coupled exclusively to a sensor chip (201);

a second die attach paddle (150' ") made of an electrically conductive material, wherein the second die attach paddle (150' ") is electrically coupled exclusively to a processor chip (200); and

at least one semiconductor die (200 or 201) having a bottom surface attached to at least one of the first and second die attach paddles, wherein the semiconductor device comprises two semiconductor dies (200 and 201), the bottom surface has a first part relating to the first semiconductor die (201) and a second part relating to the second semiconductor die (200); the first part of the bottom surface (201) is attached to the first die attach (150' "); the second part of the bottom surface (200) is attached to the first die attach (150' ");

wherein the first and second die attach paddles are electrically separated from each other.

Weiblen et al. discloses that the first semiconductor die (sensor chip 201) and the second semiconductor die (processor chip 200) (see col. 4, lines 2-3). It is noted that the sensor chip (201) is the analog circuitry and the processor chip (200) is the digital circuitry (see Hanzawa et al. figures 8-9, col. 8, lines 7-45 for an evidence). Moreover, the analog circuitry and the digital circuitry simply specifies an intended use or field of use and is not given patentable weight. It is noted that, the intended use in this device claim does not result in a structure difference between the claim invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior structure is capable of performing the intended use, then it meets the claim. *Ex parte Masham, 2 USPQ2d 1647 (1987)*.

Weiblen et al. does not mention that the first and second die attach paddles are connected to provide ground contacts and separate from each other. However, "the first and second die attach paddles are connected to provide ground contacts" simply specifies an intended use or field of use and is not given patentable weight. It is noted that, the intended use in this device claim does not result in a structure difference between the claim invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior structure is capable of performing the intended use, then it meets the claim. *Ex parte Masham, 2 USPQ2d 1647 (1987)*. Furthermore, Lee et al. discloses that it is conventional to the skill in the art to use the die attach paddle (2a) is connected to provide ground contact (see fig. 1 and col. 3,

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lines 30-33). Therefore, it would have been obvious to one having skill in the art at the time the invention was made to use the first and second die attach paddles of Weiblen to provide ground contacts for analog and digital signal. It is noted that the first and second die attach paddles of Weiblen are separate from each other and thus would provide separate ground contact (see fig. 5).

Weiblen et al. (fig. 5) does not disclose that the first and second die attach paddles are exposed on the bottom surface of the semiconductor device package. However, Applicant Admitted Prior Art discloses that the die attach paddle (200) are exposed on the bottom surface of the semiconductor device package. Therefore, it would have been obvious to one having skill in the art at the time the invention was made to have the first and second die attach paddles are exposed on the bottom surface of the semiconductor device package of Weiblen et al. because as taught by Applicant Admitted Prior Art, the die attach paddle are exposed the bottom surface of the semiconductor device package to provide an efficient heat path.

With respect to claim 32, Weiblen et al. (fig. 5) discloses that the first and second die attach paddles (150' " and 150" ") are shaped corresponding to the shapes of the first and second parts of the bottom surface, respectively.

With respect to claim 37, Weiblen et al. (fig. 5) discloses that a plurality of leads (20) for, when electrically connected to the first and second die semiconductor die (200,

201), providing electrical contacts to the first and second die semiconductor die (200, 201), said plurality of leads being held together thereby forming a lead frame.

With respect to claim 38, Weiblen et al. (fig. 5) discloses that said first and second semiconductor die (200, 201) attach paddles (150' ", 150" ") are fixed to said lead frame.

With respect to claim 39, Weiblen et al. (fig. 5) discloses that at least one of said first and second die attach paddles (150' ", 150" ") is fixed to a paddle lead on a corner of said lead frame.

With respect to claim 40, Weiblen et al. (fig. 5) discloses that the at least one die attach paddle (150' ", 150" ") is further fixed to a second paddle lead on another corner of said lead frame (20).

With respect to claim 41, Weiblen et al. (fig. 5) discloses that the at least one die attach paddle (150' ", 150" ") is further fixed to at least one of said plurality of leads (20).

With respect to claim 42, Weiblen et al. (fig. 5) discloses that the at least one of said first and second die attach paddles (150' ", 150" ") has a three point connection to said lead frame (20).

With respect to claim 43, Weiblen et al. (fig. 5) discloses only three point connection to the lead frame. Weiblen et al. (fig. 5) fails to show the at least one of said first and second die attach paddles is fixed to said lead frame at multiple connection points, the number of connection points being greater than four. However, it would have been obvious to the skilled in the art to have multiple connection points since it has been held that mere duplication of the essential working parts of the device involves only routine skill in the art. See *St. Regis Paper Co. V. Bemis Co.*, 193 USPQ 8. Therefore, it would have been obvious to the skilled in the art to have multiple connection points, the number of connection points being greater than four in order to secure the at least one of said first and second die attach paddles fixed to said lead frame.

With respect to claim 44, Weiblen et al. (fig. 5) discloses that a plurality of leads (20) for, when electrically connected to the first and second semiconductor die (200, 201), providing electrical contacts to the first and second semiconductor die (200, 201), wherein at least one of said first and second die attach paddles (150' ", 150" ") is fixed to one of said plurality of leads (20).

With respect to claim 45, Weiblen et al. (fig. 5) discloses that the plurality of leads (20) are arranged in the package to substantially form a rectangle, and said one of said plurality of leads is located near the center of one side of said rectangle.

With respect to claim 46, Weiblen et al. (fig. 5) discloses that the at least one of said first and second die attach paddles (150' ", 150" ") is further fixed to another one of said plurality of leads; said another one of said plurality of leads is located adjacent to said one of said plurality of leads; and said one and said another one of said plurality of leads form a multiple common lead.

With respect to claims 49-50, Weiblen et al. (fig. 5) does not explicitly disclose the exact size and spatial distance as claimed by Applicant. However, the size and spatial distance would have been obvious to an ordinary artisan practicing the invention because, absent evidence of disclosure of criticality for the range giving unexpected results, it is not inventive to discover optimal or workable ranges by routine experimentation. *In re Aller*, 220 F.2d 454, 105 USPQ 233, 235 (CCPA 1955). Furthermore, the specification contains no disclosure of either the critical nature of the claimed dimensions of any unexpected results arising therefrom. Where patentability is aid to be based upon particular chosen dimensions or upon another variable recited in a claim, the Applicant must show that the chosen dimensions are critical. See *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

Response to Arguments

6. Applicant's arguments filed 6/16/2006 have been fully considered but they are not persuasive.

Applicant argues that none of the cited references, whether taken singly or in combination, teach or suggest a semiconductor device comprising "an analog ground associated with the analog circuitry and a digital ground associated with the digital circuitry, wherein the analog and digital ground are separate from each other".

Applicant's argument are not persuasive because Weiblen et al. discloses that the first and second die attach paddles (150'" and 150'"") of Weiblen are separate from each other and thus the combination of Weiblen et al. in view of Lee et al. and Hanzawa et al. would provide the device structure as claimed.

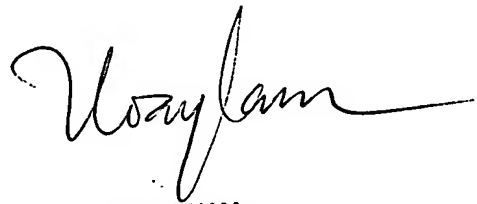
Conclusion

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to whose telephone number is 571-272-1715. The examiner can normally be reached on M-F.

8. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wael M. Fahmy can be reached on 571-272-1705. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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9. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Hoai Pham', with a long horizontal flourish extending to the right.

HOAI PHAM
PRIMARY EXAMINER